Name:

## at1119paper: Complete the Square, $b$ = odd (v516)

### Example

By completing the square, find both solutions to the given equation:

$$x^2 - 39x = -270$$

Add $\left(\frac{-39}{2}\right)^2$, which equals $\frac{1521}{4}$, to both sides of the equation.

$$x^2 - 39x + \frac{1521}{4} = \frac{441}{4}$$

Factor the left side.

$$\left(x + \frac{-39}{2}\right)^2 = \frac{441}{4}$$

Undo the squaring.

$$x + \frac{-39}{2} = \frac{-21}{2} \quad \text{or} \quad x + \frac{-39}{2} = \frac{21}{2}$$

$$x = \frac{39 - 21}{2} \quad \text{or} \quad x = \frac{39 + 21}{2}$$

$$x = 9 \quad \text{or} \quad x = 30$$

### Question 1

By completing the square, find both solutions to the given equation:

$$x^2 + 7x = 294$$

## Question 2

By completing the square, find both solutions to the given equation:

$$x^2 + 59x \;=\; -868$$

## Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 47x \;=\; 1898$$